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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,683	03/17/2004	Yoshiyuki Tsuji	250502US0X	1876

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EXAMINER
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O HERN, BRENT T

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/801,683

Applicant(s)

TSUJI ET AL.

Examiner

Brent T. O'Hern

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) 8-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 12-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claims*

1. Claims 1-20 are pending with claims 8-11 withdrawn and claims 12-20 new.

### WITHDRAWN REJECTIONS

2. The 35 U.S.C. 112, second paragraph rejections of claims 1, 3 and 7 of record in the Office Action mailed 16 August 2006, page 2, paragraph 2 has been withdrawn due to Applicant's amendments in the Paper filed 3 November 2006.
3. The 35 U.S.C. 103(a) rejections of claims 1-7 of record in the Office Action mailed 16 August 2006, page 3, paragraph 3 has been withdrawn due to Applicant's arguments in the Paper filed 3 November 2006.

### NEW REJECTIONS

4. Claims 1-7 and 12-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "**wherein a sliding frictional coefficient of the outer surface of the crucible to a carbon member at 1500 °C is more than 0.6**" in claim 3, lines 2-3 and claims 6-7, lines 6-7 of both claims is vague and indefinite since it is unclear to a person having ordinary skill in the art what is the difference between a carbon member and a non-carbon member.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7 and 12-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Segawa et.al. (US 2002/0078886).

Regarding claims 1 and 3-4, Segawa ('886) teaches a silica glass crucible (*para. 10, silica glass jig*).

The phrase **“grooves having a length of less than 200  $\mu\text{m}$ , a width of less than 30  $\mu\text{m}$  and a depth of from more than 3  $\mu\text{m}$  to less than 30  $\mu\text{m}$ ”** in claims 1, 6 and 7, lines 2-4 of all claims is interpreted as non limiting since grooves with length and width of 0  $\mu\text{m}$  are not grooves.

The phrase **“used for pulling silicon single crystal”** in claims 1, 6 and 7, lines 1-2 of all claims, is not given any patentable weight since the applicant is introducing **use limitations** into the product claims (see MPEP 2173 (q)).

The phrase **“wherein the outer surface of the crucible is covered with the fine grooves by carrying out a sand-blast treatment and a hydrofluoric acid etching on the outer surface”** in claim 4, lines 2-4 are **process limitations** in a product claim and hence not given any patentable weight since patentability of a product does not depend on its method of production (see MPEP § 2173.05(p)).

Regarding claim 2, Segawa ('886) teaches wherein the fine grooves exist on more than 10% of the outer surface of the crucible (*paras. 1 and 10 and FIGs 1 and 4*).

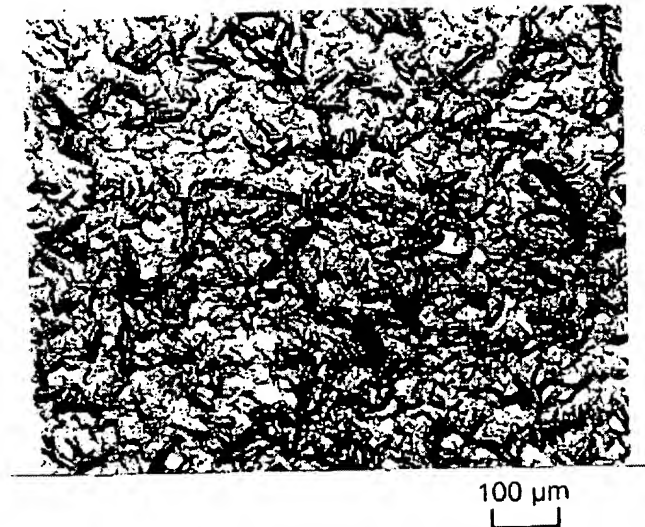
Regarding claims 6 and 15-17, Segawa ('886) teaches grooves having a length of 10-100  $\mu\text{m}$  (*para. 10, 20-300  $\mu\text{m}$* ), width of 10 to 30  $\mu\text{m}$  (*para. 10, 0.5-50  $\mu\text{m}$* ) and a

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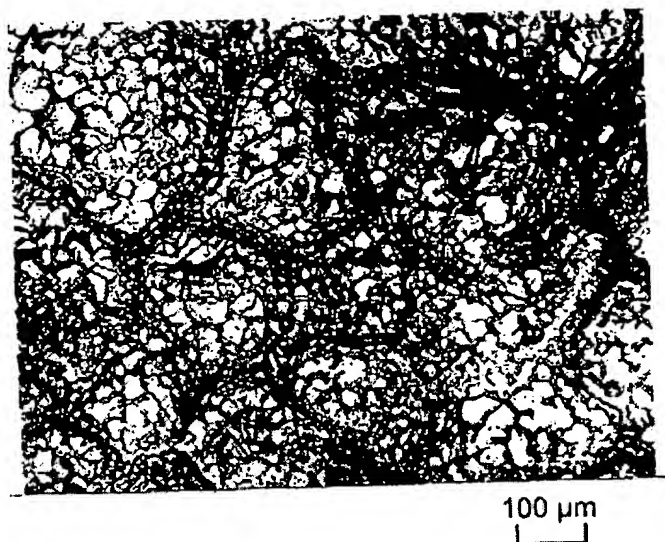
depth of 3  $\mu\text{m}$  to 10  $\mu\text{m}$  (*para. 10, 0.1-10  $\mu\text{m}$* ) and fine grooves exist on more than 10% of the outer surface of the crucible (*paras. 1 and 10 and FIGs 1 and 4*).

Regarding claims 5, 7 and 18-20, Segawa ('886) teaches grooves having a length of 10-100  $\mu\text{m}$  (*para. 10, 20-300  $\mu\text{m}$* ), width of 10 to 30  $\mu\text{m}$  (*para. 10, 0.5-50  $\mu\text{m}$* ) and a depth of 3  $\mu\text{m}$  to 10  $\mu\text{m}$  (*para. 10, 0.1-10  $\mu\text{m}$* ), fine grooves exist on more than 10% of the outer surface of the crucible (*paras. 1 and 10 and FIGs 1 and 4*), and wherein the number of projections having a height of 0.1 mm or more is an average of less than 5/mm<sup>2</sup> per unit area on the outer surface of the crucible (*See para. 11 wherein the projections have a height from 0.1 to 10  $\mu\text{m}$ /(0.0001 to 0.01 mm).*).

Regarding claims 12-14, Segawa ('886) teaches wherein at least an outer surface of a wall part of the crucible is covered with fine grooves having a length of 10-100  $\mu\text{m}$  (*para. 10, 20-300  $\mu\text{m}$  and FIGS 1 and 4*), width of 10 to 30  $\mu\text{m}$  (*para. 10, 0.5-50  $\mu\text{m}$* ) and a depth of 3  $\mu\text{m}$  to 10  $\mu\text{m}$  (*para. 10, 0.1-10  $\mu\text{m}$* ).



**FIG. 1**



**FIG. 4**

### **ANSWERS TO APPLICANT'S ARGUMENTS**

6. In response to Applicant's arguments (*p. 7, para. 2 to p. 10, last para. of Applicant's Paper filed 3 November 2006*) that Tsuji ('668) and Hellmann ('006) do not teach previously presented claims 1-6, it is noted that the Examiner has found Applicant's arguments persuasive.


### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brent T. O'Hern whose telephone number is (571) 272-0496. The examiner can normally be reached on M-F, 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on (571) 272-2172. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Brent T O'Hern  
Examiner  
Art Unit 1772  
December 6, 2006

  
NASSER AHMAD  
PRIMARY EXAMINER  
12/6/06